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EXAMINER	
VITAL, PIERRE M	

ART UNIT	PAPER NUMBER
2188	11

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/918,796	Applicant(s) TANAKA ET AL.	
	Examiner Pierre M. Vital	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-10,12-16,18-22,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10,12-16,18-22,24 and 25* is/are rejected.

7)☒ Claim(s) *1,13 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed December 24, 2003 in response to PTO Office Action mailed September 11, 2003. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.

2. Claims 1-26 have been presented for examination in this application. In response to the last Office Action, claims 1,4, 6, 7, 12, 13, 19, 24 and 2 have been amended. Claims 5, 11, 17, 23 and 26 have been canceled. No claims have been added. As a result, claims 1-4, 6-10, 12-16, 18-22, 24 and 25 are now pending in this application.

Claim Objections

3. Claims 1, 13 and 24 are objected to because of the following informalities:

In claim 1, line 7, it appears that "the storage system check's" should be changed to –the storage system checks--.

In claim 13, line 3, it appears that "one of plurality" should be changed to –one of a plurality--.

In claim 24, line 8, it appears that "the storage system check's" should be changed to –the storage system checks--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 6-7, 9-10, 12-16, 18-19, 21-22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flynn, Jr. (US6,453,392) and Applicant Admitted Prior Art (AAPA).

As per claim 1, Flynn discloses a storage system wherein the system receives a command to which an ID number for identifying one of a plurality of OSs is attached {*i.e., each request includes a PGID and a VMID*} [col. 8, lines 51-57], derives said ID number {*i.e., the PGID/VMID is compared to a stored PGID/VMID*} [col. 8, lines 65-67], and returns a response that indicates whether to process or reject the access to a logical volume with said ID number attached thereto, depending on whether the one of the plurality of OSs identified by said command is authorized to access the logical volume {*i.e., if PGID/VMID of OS and PGID/VMID of storage device are not the same, access is denied*} [col. 9, lines 1-15].

However, Flynn does not specifically teach that the storage system checks whether the one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs; and the storage system receives the authentication information of the plurality of OSs from a

computer connected to the storage system by using a control frame and sets the authentication information into the table in advance as recited in the claim.

AAPA discloses a storage system checks whether one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs [page 2, line 13- page 3, line 7]; and a storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance [page 2, line 13 – page 3, line 7] to protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources (page 1, lines 12-17). Since the technology for implementing authentication information set in a table in advance for authorizing accesses to OSs was well known, and since authentication information set in a table in advance for authorizing accesses to OSs protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information set in a table in advance for authorizing accesses to OSs in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information set in a table in advance for authorizing accesses to OSs because it was well known to benefit with protecting the security of individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

As per claim 2, Flynn does not specifically teach that the authentication information includes information that some of the plurality of OSs have authentication access to the logical volume as recited in the claim.

AAPA discloses authentication information includes information that some of a plurality of OSs have authentication access to a logical volume [page 2, line 21 – page 3, line 5]. Since the technology for implementing authentication information including information that some of a plurality of OSs have authentication access to a logical volume was well known, and since authentication information including information that some of a plurality of OSs have authentication access to a logical volume protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information including information that some of a plurality of OSs have authentication access to a logical volume in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information including information that some of a plurality of OSs have authentication access to a logical volume because it was well known to benefit with protecting the security of individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

As per claim 3, Flynn does not specifically teach that the authentication information includes priority information which indicate that a command issued from one

of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's as recited in the claim.

AAPA discloses authentication information includes priority information which indicates that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's [*table includes priority information*; page 2, line 16 – page 3, line 7]. Since the technology for implementing authentication information including priority information was well known, and since authentication information including priority information protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information including priority information in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information including priority information because it was well known to benefit with protecting the security of individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

As per claim 4, Flynn discloses whether to process or reject the access requested by said command received is determined, based on preset authority and said response is returned {*i.e., if PGIDs/VMIDs are not the same, access is denied; if same, access is granted*} [col. 8, line 65-col. 9, line15].

As per claim 6, Flynn discloses the system returns the response which is determined depending on combination of a plurality of types of ID numbers attached to said command received {*i.e., PGIDs and VMIDs are both compared*} [col. 9, lines 1-15].

As per claim 7, Flynn discloses a virtual private volume control method wherein servers on which a plurality of OSs run communicate with disk apparatus in such a manner that when one of said OSs on a server issues an access command, said server assign as an ID number for identifying the OS and sends the command with the assigned ID number attached thereto {*i.e., each request includes a PGID and a VMID*} [col. 8, lines 51-57]; said disk apparatus receives the sent command, derives said ID number {*i.e., the PGID/VMID is compared to a stored PGID/VMID*} [col. 8, lines 65-67], and returns a response that indicates whether to process or reject the access to a logical volume with said ID number attached thereto, depending on whether the one of the plurality of OSs identified by said command is authorized to access the logical volume {*i.e., if PGID/VMID of OS and PGID/VMID of storage device are not the same, access is denied*} [col. 9, lines 1-15].

However, Flynn does not specifically teach that the disk apparatus includes tables in which specification of whether to process or eject the access requested by a command, dependent on the OS's ID number; the storage system checks whether the one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs; and the storage system receives the authentication information of the plurality of OSs from a computer

connected to the storage system by using a control frame and sets the authentication information into the table in advance; the authentication information includes information that some of the plurality of OSs have authentication access to the logical volume; the authentication information includes priority information which indicate that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's as recited in the claim.

AAPA discloses a storage system checks whether one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs [page 2, line 13- page 3, line 7]; and a storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance [page 2, line 13 – page 3, line 7]; an authentication information includes information that some of a plurality of OSs have authentication access to a logical volume [page 2, line 21 – page 3, line 5]; authentication information includes priority information which indicates that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's [*table includes priority information*; page 2, line 16 – page 3, line 7] to protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources (page 1, lines 12-17).

Since the technology for implementing authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including

authentication access to a logical volume, and authentication information including priority information was well known, and since authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information because it was well known to benefit with protecting the security of individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

Claim 9 is rejected as per claim 3 above.

Claim 10 is rejected as per claim 4 above.

As per claims 12, 13, 19 and 24, Flynn discloses OS Management Software wherein when at least one of a plurality of OSs issues an access command, said software assigns an ID number for identifying the OS {*i.e., each request includes a*

PGID and a VMID} [col. 8, lines 51-57]; and for using whether the OS is authorized to access a logical volume which is included in a storage system {*i.e., if PGID/VMID of OS and PGID/VMID of storage device are not the same, access is denied*} [col. 9, lines 1-15]; stores the assigned ID number into internal memory of a server {*i.e., the PGID/VMID is compared to a stored PGID/VMID*} [col. 8, lines 65-67], receives a response to which said ID number is attached and returns the response to said OS {*i.e., if PGIDs/VMIDs are not the same, access is denied*} [col. 9, lines 1-15].

However, Flynn does not specifically teach that the disk apparatus includes tables in which specification of whether to process or eject the access requested by a command, dependent on the OS's ID number; the storage system checks whether the one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs; and the storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance; the authentication information includes information that some of the plurality of OSs have authentication access to the logical volume; the authentication information includes priority information which indicate that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's as recited in the claim.

AAPA discloses a storage system checks whether one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs [page 2, line 13- page 3, line 7]; and a

storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance [page 2, line 13 – page 3, line 7]; an authentication information includes information that some of a plurality of OSs have authentication access to a logical volume [page 2, line 21 – page 3, line 5]; authentication information includes priority information which indicates that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's [*table includes priority information*; page 2, line 16 – page 3, line 7] to protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources (page 1, lines 12-17).

Since the technology for implementing authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information was well known, and since authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information

in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information because it was well known to benefit with protecting the security of individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

Claim 14 is rejected as per claim 2 above.

Claim 15 and 21 is rejected as per claim 3 above.

Claim 16 and 22 is rejected as per claim 4 above.

Claim 18 is rejected as per claim 6 above.

As per claim 25, Flynn discloses a storage system comprising an interface which is capable to connect to a host computer which executes a plurality of OSs [*two guest OSs perform storage device operations*; col. 4, lines 2-9; col. 8, lines 30-34]; a controller connected to said interface [*storage controller 108;* Fig. 1]; a plurality of disks which is used for a logical volume [*DASDs*; col. 6, lines 1-3]; wherein said interface receives a command from one of said plurality of OSs along with an ID number for identifying the one of said plurality of OSs [*each request includes a PGID and a VMID*; col. 8, lines 51-57]; wherein said controller checks whether the one of OSs has the authority to access the logical volume, and notifies to the host computer to deny the command when the one of

the plurality of OSs identified by the ID number doesn't have the authority [*if PGID/VMID of OS and PGID/VMID of storage device are not the same, access is denied*; col. 9, lines 1-15].

However, Flynn does not specifically teach that the disk apparatus includes tables in which specification of whether to process or eject the access requested by a command, dependent on the OS's ID number; the storage system checks whether the one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs; and the storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance; the authentication information includes information that some of the plurality of OSs have authentication access to the logical volume; the authentication information includes priority information which indicate that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's as recited in the claim.

AAPA discloses a storage system checks whether one of the plurality of OSs by said command is authorized or not based on a table which includes authentication information of each of the plurality of the OSs [page 2, line 13- page 3, line 7]; and a storage system receives the authentication information of the plurality of OSs from a computer connected to the storage system by using a control frame and sets the authentication information into the table in advance [page 2, line 13 – page 3, line 7]; an authentication information includes information that some of a plurality of OSs have authentication access to a logical volume [page 2, line 21 – page 3, line 5];

authentication information includes priority information which indicates that a command issued from one of the plurality of OSs should be treated prior to the other command issued from one of the other one of the plurality of OS's [*table includes priority information*; page 2, line 16 – page 3, line 7] to protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources (page 1, lines 12-17).

Since the technology for implementing authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information was well known, and since authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information protect the security of individual users and efficiently use resources by allowing a plurality of users to share these resources, an artisan would have been motivated to implement authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information in the system of Flynn. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use authentication information set in a table in advance for authorizing accesses to OSs, and authentication information including authentication access to a logical volume, and authentication information including priority information because it was well known to benefit with protecting the security of

individual users and efficiently use resources by allowing a plurality of users to share these resources as taught by AAPA.

6. Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flynn, Jr. (US6,453,392) and Applicant Admitted Prior Art (AAPA) as applied to claims 7 and 19 above, and further in view of Firoozmand (US5,488,724).

As per claims 8 and 20, Flynn and AAPA disclose the claimed invention as detailed above in the previous paragraphs. However, neither Flynn nor AAPA discloses coding ID numbers in a data frame and sending the data frame as a command as recited in the claims.

Firoozmand discloses coding ID numbers in a data frame and sending the data frame as a command [see Abstract; col. 20, lines 8-13].

It would have been obvious to one of ordinary skill in the art, having the teachings of Flynn and AAPA and Firoozmand before him at the time the invention was made, to modify the system of Flynn and Ault to include coding ID numbers in a data frame and sending the data frame as a command because it would have optimized storage of framed data by maintaining synchronization between frames of data and their corresponding headers as taught by Firoozmand.

R spons to Argum nts

7. Applicant's arguments filed December 24, 2003 have been fully considered but they are not persuasive. As to the remarks, applicant asserted that:

(a) Flynn'392 cannot constitute a proper reference under 35 U.S.C. §102 or §103 because Flynn '392 is derived from a document made available to the public on June 6, 2002 and that the priority date of January 25, 2001 of the present application antedates the publication date of the Flynn reference.

Examiner respectfully traverses Applicant's arguments for the following reasons. Examiner would like to point out that although the priority date of the present invention antedates the publication date of the Flynn reference, that priority date does not antedate the filing date of the Flynn patent. It is to be noted that the Flynn patent was the only reference applied against the present application, not the publication document. It is further noted that Applicant has mistakenly interpreted Examiner's rejection of claims 1-4, 6, 7, 9, 10, 12, 25 and 26 to be under 35 U.S.C. §102(b) while in the rejection mailed 9/11/03 while the outstanding rejection was under 35 U.S.C. §102(e) [see paragraphs 5 and 6, Paper No. 8]. The Flynn reference qualifies under 35 U.S.C. 102(e) since the reference has a filing date of more than a year than the filing date of the present application. Thus, it can be clearly seen that the Flynn reference does constitute a proper reference under 35 U.S.C. §102(e) or §103.

8. Applicant's arguments with respect to claims 1-4, 6-7, 9-10, 12-16, 18-19, 21-22, 24 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach processing or rejecting Operating System commands based on ID assigned to Operating System.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (703) 306-5839. The examiner can normally be reached on Mon-Fri, 8:30 am - 6:00 pm, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703) 306-2903. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mano Padmanabhan 2/12/04

Pierre M. Vital
February 11, 2004
Art Unit 2188

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TC 2100